

## ABSTRACT

In order to generate check matrixes for "irregular-LDPC codes", a method of generating a check matrix for an LDPC code includes determining a coding rate (S1), generating a basic matrix that satisfies predetermined

5 conditions (S2), determining a number of columns of a check matrix (S3), substituting rows of the basic matrix based on a specific relational equation (S4), provisionally searching an ensemble of weights by executing Gaussian approximation (S5), deleting rows of the basic matrix after the permutation in order from the bottom by considering the number of rows after a division (S6),

10 searching an optimal ensemble of weights by executing Gaussian approximation based on a predetermined condition after row deletion (S7), and dividing at random the weights of the basic matrix after the row deletion based on the optimal ensemble (S8).